

ABSTRACT OF THE DISCLOSURE

A metal cathode for an electron-emission device, and an indirectly heated cathode assembly employing the metal cathode where the metal cathode is formed of a quaternary alloy including 0.1-20% by weight barium (Ba), 0.1-20% by weight a metallic mobilizer facilitating Ba diffusion, a metal with a difference in atomic radius of at least 0.4 Angstrom from the atomic radius of platinum (Pt) or palladium (Pd), the metal being in the range of 0.01 to 30% by weight, and a balance of at least one of Pt and Pd. The metal cathode has a low operating temperature due to its reduced work function with improved current emission capability. The metal cathode can be used for a longer lifetime at high current density. Therefore, the metal cathode can be used effectively in electron-beam devices, such as a Braun tube or picture tube, satisfying larger size, longer life span, high definition, and high luminance requirements of the devices.